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INVESTIGATING THE USE OF WEB 2.0 TOOLS AND OPEN EDUCATIONAL RESOURCES FOR ICS

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ABSTRACT

The availability of Web 2.0 tools together with associated Open Educational Resources (OER) enables the creation of new collaborative online learning spaces. This paper discusses initial findings from the Higher Education Academy (HEA) Information and Computer Sciences (ICS) funded project: 'Using Open Educational Resources and Web 2.0 Tools to support Ethical Reasoning in ICS Project-Based Learning'. The project started officially in December 2009 (students joined in February 2010) with the aim of investigating the potential of Web 2.0 tools and OER to support students engaged in final year project-based learning at the Open University. Capitalising on existing online environments and tools as well as available learning resources in the area of ethical reasoning in ICS, this project explores the potential of openly and freely accessible Web 2.0 tools to provide a space where students can interact with each other and their tutor to discuss concerns that arise within their project work including those related to ethical issues. This intervention was planned as existing arrangements that support communication between tutor and distance learning students (the course website, separate closed tutor group forums and email) appeared to be insufficient to facilitate the necessarily intense episodes of interaction required for productive supervision. This paper discusses students' views of social networking tools and seeks to shed some light on which tools they would prefer to use for formal learning.

Keywords

Open Educational Resources, Ethical Reasoning, Web 2.0 tools, Project-based Learning

1. INTRODUCTION

The project discussed in this paper investigates ways of using Web 2.0 tools to provide further support to distance learning students engaged in project-based work at the Open University. In terms of OER the focus is on the area of ethical reasoning. The project is using the community-oriented facilities available in OpenLearn (Open Content Initiative, 2006) the United Kingdom (UK) Open University OER repository. These facilities include the OpenLearn twin sites LearningSpace (<http://openlearn.open.ac.uk>) and LabSpace (<http://labspace.open.ac.uk>), which provide social networking tools that can be 'described as integrating rather than integrated' (Culwin and Lancaster, 2004, p1).

The community building features discussed in this paper include video conferencing, online journals and mind mapping tools. The association of collaborative tools with OER is advocated by Smith and Casserly, 2006. In addition to these integrating tools, the sites also offer 'learning clubs', an integrated feature designed as part of the evolving OpenLearn environment. A learning club starts from a premise of a space where social interaction is encouraged through Web 2.0 tools and the OER content can be drawn or pulled into that space. This project also fits within the Open Learning network (OLnet olnet.org), which is undertaking research into design, use and reuse OER in order to share the findings with a worldwide audience.

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The project was proposed as a pilot study involving volunteer students drawn from one tutor group in the 2010 cohort, hence constituting a piece of action research that should inform future developments in a course that has counted on a total cohort of 185 students in 2009 alone. This project also draws upon student feedback gathered in 2008 and 2009. Furthermore, given the continued deployment and increased use of OER and online environments, as well as the rapidly growing student engagement with Web 2.0 tools in contexts not necessarily considered 'educational', it is expected that the findings will be potentially relevant to both campus-based and distance teaching institutions of project students in ICS.

In addition, the project capitalises on the OpenLearn unit *Introducing Ethics in Information and Computer Sciences*, published in 2009 (<http://openlearn.open.ac.uk/course/view.php?id=3990>). Appropriate elements from this unit that suited the requirements of M450 were identified for reuse in this project.

2. THE COMPUTING PROJECT

The Open University course M450 *The Computing Project*

<http://www3.open.ac.uk/study/undergraduate/course/m450.htm> is a level 3, 60 CATs points course taught at a distance over a period of 9 months. Before undertaking their project students need to have studied at least one level-3 course. The students involved in this project have (in most cases) previously taken the third level course in Human Computer Interaction M364 *Fundamentals of interaction design* (<http://www3.open.ac.uk/study/undergraduate/course/m364.htm>) and base their project in the main on that course. M450 provides opportunities for students to put into practice the knowledge gained in previous courses as well as their professional experience, which equates the course to a final year project in a face-to-face setting.

M450 is centred on a piece of project work in which students are expected to gain 'practical experience of independent learning and reflective practice (...) [and] apply advanced principles and techniques to solve problems' (Open University, 2009). The course materials are all presented online on a dedicated, password-protected Web site. Tutorial support is also provided entirely online to groups of 6-8 students, each working in their own chosen topic or area. In addition to prompting and moderating discussions and providing individual, tailor-made support to students, tutors also mark and provide feedback on the 3 pieces of summative assignment completed throughout the course (Tutor-Marked Assignments or TMAs) as well as their examinable component, the project report (End-of-Course Assignment or ECA).

3. RESEARCH APPROACH

This is a small scale investigation that aims to draw upon students' views as an essential element to inform teaching practice and course development. The project is a pilot study adopting an action research approach (Somekh, 2006). The tutor is acting as a participant observer and evaluator, working along side a collaborator and external evaluator. Data gathering methods include semi-structured interviews, informal surveys, observational techniques and data analysis adopts an approach based on grounded theory (Strauss & Corbin, 1997).

At the start of the project (December 2009), approval was sought from relevant Open University committees so that students could be approached to take part in the project (based on their previous recent involvement in research). Five students (out of eight in the tutorial group from the 2010 cohort) agreed to participate in the project. The number of students involved from the 2008 cohort was five students and the number involved from the 2009 cohort was four.

Participants were surveyed regarding their preferences and attitude to using Web 2.0 social networking tools for their course work. The discussion draws on data collected from three presentations (student cohorts in 2008, 2009 and 2010). The data was collected from a tutor's own students through a short email survey sent after the students had submitted their examinable component in October 2008 and 2009 respectively and from the present cohort when they started their projects in February 2010.

Data collection and analysis regarding the students' actual usage of Web 2.0 tools and the ethics OER is ongoing at the time of writing.

4. PRELIMINARY FINDINGS

The aim was to allow geographically spread distance learners, in particular, who do not have face-to-face interaction, the opportunity to choose communication media and methods that suited the types of interaction they prefer to engage in.

After submitting their examinable component, students in the 2008/09 cohorts were asked (by their tutor) to report their preferences in relation to the types of Web 2.0 tools they would like to have used to help them collaborate with their tutor and other students on their course. They were asked to indicate their preferences by typing in 'yes' or 'no' next to each of the descriptive options below (presented to them in a table) and asked to make additional comments.

Might any of the suggested facilities below help you with your study of M450:

- Use of some sort of learning club for students;
- Use of video conferencing between yourself and your tutor;
- Use of video conferencing between yourself and other students;
- Use of video conferencing between yourself, other students and the tutor together;
- Use of instant messaging;
- Use of a private online diary or blog;
- Use of a public online diary or blog;
- Use of mind mapping tools.

Initial analysis suggests that the results for 2008 and 2009 cohorts were fairly similar across the eight options offered. The one area where there was a difference of opinion was on 'Use of video conferencing between the student, other students and the tutor together'. In 2008 only one student out of 5 made this selection whereas in 2009 three out of four students made this choice. Taking the results from the 2008 and 2009 cohorts of students together the overall results suggest that the majority of the students would prefer to use the following Web 2.0 tools to assist them with their final year project based work:

- mind mapping tools (seven students out of nine);
- some sort of learning club for students (six students out of nine);
- one to one video conferencing with their tutor (five students out of nine);
- a public online diary or blog (five students out of nine).

The slightly less popular Web 2.0 tools to assist students with their final year project based work were:

- video conferencing between a student, other students and the tutor (four students out of nine);
- instant messaging (four students out of nine);
- a private online diary or blog (three students out of nine).

The Web 2.0 tool, which appeared to be fairly unpopular (one out of nine students) in terms of assisting students with their final year project based work, was use of video conferencing between students and other students (without tutor input).

The 2010 cohort of students were sent the same survey though at the start of the year which differed from the 2008/09 cohorts who were approached at the end of their course. In 2010 the majority of students would prefer to use the following Web 2.0 tools to assist them with their final year project based work:

- one to one video conferencing with their tutor (four students out of five);
- instant messaging (four students out of five);
- video conferencing between a student, other students and the tutor (three students out of five);
- a private online diary or blog (three students out of five).

The Web 2.0 tools that were less popular were:

- mind mapping tools (two students out of five);
- video conferencing between a student and other students (one student out of five);
- a public online diary or blog (one student out of five).

The one area of common agreement in relation to student preferences for tools to help them with their study of M450 (between the 2008/09 and 2010 cohorts) is in terms of one to one video conferencing with their tutor. Indeed this was a much more important option for students in 2010. Perhaps this is an unsurprising result as distance learners would want to increase their contact with their tutor. However video conferencing between the student, other students and the tutor was also important to both the 2009 and 2010 cohorts. The students (across the three cohorts) indicated a lack of interest in collaborating with other students if the tutor was not involved. Unexpectedly, the 2010 students did not appear to be interested in using either a learning club or

mind mapping tools which had been important selections for the 2008/09 students. The 2010 students preferred to use a private online diary or blog as opposed to a public diary or blog when compared to the 2008/09 cohorts of students. These findings indicate that a wide variety of Web 2.0 tools are required to suit the needs of different student cohorts and that students select a small number of Web 2.0 tools for formal learning. This finding is in agreement with Smith et al (2009) who report that the use of social networking tools for undergraduate course work as compared to personal usage (age groups 18 to 40 plus) is much more limited. The majority of respondents in Smith et al's (*op. cit.*) survey though from the Net Generation, report that they prefer only a modest amount of technology use in their courses.

The M450 course itself started in February 2010. As indicated above students were keen to engage with their tutor in one to one video conferencing which started almost immediately. A learning club was then set up as a space with a selection of alternative tools to encourage social interaction around the re-purposed ethics materials. The club forum was used to indicate types of activity to students and students could choose tools appropriate to their needs.

Students gradually became familiar with the features and tools that they decided to use. Video conferencing has been adopted for intense episodes of interaction between student and tutor on a one to one basis (in line with the students' preference indications in 2010). Students did not find it difficult to access and use the video conferencing system with minimal guidance. Certainly too Tallent-Runnels (2005) propose that technological barriers are not necessarily presenting a problem; rather, they are encouraging interaction. The learning club (though not of interest to the students in terms of preference) has been used by at least four of the five students to access the additional re-purposed materials on ethical issues which they have used for part of the work they were required to do for their 2nd assignment for the M450 project course. Usage of the ethics OER has been on an individual basis initially though this echoes usage of OER by the single learner and for self-regulated learning (Remmele and Seeber, 2009). The 2010 cohort of students have shown an interest in working with other students as long as the lecturer is present. 'Social networks arise around common (learning) interests ...' Redecker (2009, p9) and students may find generic aspects of their projects that they would like to discuss with other students.

5. PRELIMINARY CONCLUSIONS

This is still an early stage in the project and the findings are tentative and need more in-depth analysis. There are interesting differences in students' expectations/preferences across cohorts. The initial overall result from both cohorts in 2008 and 2009 suggests that the majority of the students would prefer to use: mind-mapping tools, learning clubs, one to one video conferencing with their tutor, and a public online journal or blog. In 2010 students' preferences are for video conferencing with their tutor and other students, a private online journal or blog and an instant messaging facility. Preferences for video conferencing either between the tutor and individual students or between the tutor and a number of students varied between the cohorts. The 2010 cohort of students did not display a particular interest in using a learning club.

In exploring, in particular, the learners' perspective of using OER within Web 2.0 online learning spaces, the project findings should be of special value as this is an area of research that is only in its infancy. This research (as it develops) will influence future deployment of Web 2.0 tools associated with OER content for project based learning at The Open University.

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